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10/715,791	11/18/2003	Scott Alan Geye	MV03-007	4568
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Michael B. Atllass Unisys Corporation Unisys Way, MS/E8-114 Blue Bell, PA 19424-0001				
EXAMINER				
ZHE, MENG YAO				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/715,791

Applicant(s)

GEYE ET AL.

Examiner

MENGYAO ZHE

Art Unit

2195

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/US)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Claims 1-32 are presented for examination.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 8, 20, 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. The following claim languages are unclear and indefinite:

- i) Claim 8, it is uncertain when the step of "estimating the processor usage" was ever performed <i.e. in relation to steps of claim 1, where does the step of estimation happen?>.

Claims 20, 30 have the same deficiencies as claim 8 above.

#### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-7, 9-19, 21-29, 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhagat et al., Patent No. 6,782,410 (hereafter Bhagat).
4. Bhagat was cited in the previous office action.
5. As per claims 1, 13, and 23, Bhagat teaches a method of dynamically managing a computer system having a plurality of processors (Fig 2, unit 24), comprising:

identifying a first set of computer-readable instructions (Fig 2, unit 21; Column 7, lines 16-18);

assigning the first set of computer-readable instructions to at least one of said plurality of processors using an affinity mask (Column 3, lines 1-5: the collection corresponds to affinity mask; Column 7, lines 20-26; Column 10, lines 45-46);

automatically adjusting the number of processors where said first set of instructions can execute by adding or removing a processor to or from the affinity mask based processor usage in the system (Column 7, lines 30-46).

Bhagat does not specifically teach the processor being removed from the affinity mask in a reverse order that the processor is added to the affinity mask.

However, since the algorithm Last-in-First-Out (LIFO) is commonly practiced at the time of the applicant's invention, where an item that is lastly added is removed first,

it would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to manage the processor group such that a processor is removed from the affinity mask in a reverse order that the processor was added to the affinity mask.

6. As per claims 2, 14, and 24, Bhagat teaches wherein the first set of computer-readable instructions comprise a computing thread (Column 7, lines 16-20).

7. As per claims 3, 15, and 25, Bhagat teaches wherein the first set of computer-readable instructions comprise an application program (Column 3, lines 1-10).

8. As per claims 4, 16, and 26, Bhagat teaches wherein the processor usage is based on the CPU utilization for the computer-readable instructions (Column 7, lines 38-46).

9. As per claims 5, 17, and 27, Bhagat does not specifically teach wherein the CPU utilization is normalized for the CPUs in the number of processors eligible to execute the first set of instructions can run on.

However, it would have been obvious to one having ordinary skill in the art of resource computation at the time of the applicant's invention to normalize the CPU utilization because it allows one to deal with resource computation and resource quantity in an easier and more efficient manner.

10. As per claims 6, 18, and 28, Bhagat teaches identifying a second set of computer-readable instructions wherein said first set of computer-readable instructions and said second set of computer-readable instructions comprise an application group (Fig 2, unit 22).

11. As per claims 7, 19, and 29, Bhagat teaches wherein the application group is assigned to a common set of processors whose number is automatically adjusted (Column 7, lines 20-26).

12. As per claims 9, 21, and 31, Bhagat teaches wherein the processor usage comprises an average processor usage taken over a predefined interval (Column 8, lines 35-41; Column 12, lines 27-33).

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13. As per claims 10, 22, and 32, Bhagat teaches where the act of automatically adjusting the number of processors compares the processor usage to a threshold value (Column 8, lines 35-41; Column 12, lines 35-60).

14. As per claim 11, Bhagat does not specifically teach wherein the threshold value for adding a processor is above about 85% of CPU utilization on the processors that the first set of instructions is executing on.

However, it would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to pick any percentage number, including this particular 85%, as a threshold value, as there is nothing significant about this value itself to give the entire invention a special result.

15. As per claim 12, Bhagat does not specifically teach wherein the threshold value is for deleting a processor is below about 65% of CPU utilization on the processors that the first set of instructions is executing on.

However, it would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to pick any percentage number, including this particular 5%, as a threshold value, as there is nothing significant about this value itself to give the entire invention a special result.

16. Claims 8, 20 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhagat et al., Patent No. 6,782,410 (hereafter Bhagat) in view of Grice et al., Patent No. 5,600,822 (hereafter Grice).

17. Grice was cited in the previous office action.

18. As per claims 8, 20, and 30, Bhagat teaches estimating processor usage before resource allocation (Column 12, lines 34-36, lines 45-53). Bhagat does not specifically teach wherein said first set of computer readable instructions are elevated in priority class before estimating processor usage.

However, Grice teaches elevating priority for a group of instructions before resources are allocated to them for the purpose of favoring the allocation of resources for one group of instructions over another group of instructions (Abstract).

It would have been obvious at the time of the applicant's invention to combine the teachings of Bhagat with elevating priority before allocating resources, as taught by Grice, so that before estimating processor usage for resource allocation, said first set of computer readable instructions are elevated in priority class, because it favors the allocation of resources for one group of instructions over another.



***Response to Arguments***

19. Applicant's argument filed on 1/10/2008 regarding claims 1-32 have been fully considered but are not persuasive.
20. In the remark applicant argued in substance that:
- i) Pg 9, Claim 1, Bhagat does not teach an affinity mask.
  - ii) Pg 11, claim 5, normalization of CPU utilization is not obvious.
  - iii) Pg 11, claims 11-12, having a percentage of above about 85% and below about 65% would not have been obvious for a threshold.
21. The Examiner respectfully disagree with the applicant, as to point:
- i) The applicant described an affinity mask as merely set of CPUs assigned to execute an application on Pg 2 of the Specification. Bhagat teaches a collection where a common set of processors are used to execute a set of processes (Pg 3, lines 1-5). Therefore, Bhagat's collection corresponds to affinity mask based on applicant's own definition of affinity mask. Furthermore, Bhagat specifically teaches using affinity mask in Column 10, line 46.
  - ii) Normalization of a measurement value is well known and commonly practiced at the time of the applicant's invention. The applicant even admitted on Pg 8 of the Remarks/Arguments that normalization is well known in mathematics, engineering, or statistics. Therefore, it would have been obvious for one having ordinary skill in the art at the time of the applicant's invention to normalize any measured value, including CPU utilization, in order to obtain a meaningful result.
  - iii) Bhagat teaches a desire CPU usage threshold (Column 12, lines 35-40). Since the threshold is desired, it is obvious that it may take on any value.

Furthermore, since the applicant claimed that the threshold is not an exact value, only above about or below about, any threshold value of Bahagat would fall within the range claimed by the applicant.

### ***Conclusion***

22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **MENGYAO ZHE** whose telephone number is (571)272-6946. The examiner can normally be reached on **Monday Through Friday, 7:30 - 5:00 EST**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Lewis A. Bullock, Jr./  
Supervisory Patent Examiner, Art Unit 2193